Amended Claims:

1. (currently amended): A method of orally immunizing a host ~~organism~~ animal against a gastrointestinal, mucosally invasive Mycobacterium avium subspecies paratuberculosis (MAP), the steps comprising:

a. providing an enteric, mucosally adherent, non-systemically invasive, live ~~Mycobacterium avium subspecies paratuberculosis~~ MAP organism having an attenuated virulence;

b. orally administering the MAP organism to a host animal in ~~an immunizing~~ a controlled dose and manner to elicit an immune response.

2. (currently amended): The method of claim 1, wherein the MAP organism stimulates a Th1-type response and/or elicits IgA secretion and cell-mediated immunity.

3. (currently amended): The method of claim 2, wherein the MAP is a viable organism.

4. (currently amended): The method of claim 2, wherein the MAP is a recombinant organism.

5. (cancelled without prejudice)

6. (currently amended): The method of claim 1, wherein the MAP target organ is the intestinal mucosa.

7. (cancelled without prejudice)

8. (cancelled without prejudice)

9. (cancelled without prejudice)

10. (cancelled without prejudice)

11. (cancelled without prejudice)

12. (cancelled without prejudice)

13. (cancelled without prejudice)

14. (cancelled without prejudice)

15. (new): The method of claim 1, wherein the MAP organism is a serially passaged MAP strain.

16. (new): The method of claim 1, wherein the MAP organism has a modified adherence to the gastrointestinal mucosa of the host animal.

17. (new): The method of claim 15, wherein the MAP strain is selected on the basis of having a modified adherence to the gastrointestinal mucosa of the host animal.

18. (new): The method of claim 15, wherein the MAP strain is serially passaged in the presence of mutagens thereby increasing the probability of genetic variation produced during each round of passaging the MAP strain.

19. (new): The method of claim 4, wherein the recombinant MAP organism has a modified adherence to the gastrointestinal mucosa of the host animal.

20. (new): The method of claim 1, wherein the MAP is used in combination with a pharmaceutically acceptable carrier.

21. (new): The method of claim 4, wherein the recombinant MAP organism is used in combination with a pharmaceutically acceptable carrier.

22. (new): The method of claim 15, wherein the serially-passaged MAP strain is used in combination with a pharmaceutically acceptable carrier.

23. (new): The method of claim 1, wherein the oral administration of the attenuated MAP is used in combination with a killed MAP and/or an attenuated, live MAP that is parenterally administered.

24. (new): The method of claim 4, wherein the oral administration of the recombinant MAP organism is used in combination with a killed MAP and/or an attenuated, live MAP that is parenterally administered.

25. (new): The method of claim 15, wherein the oral administration of the serially passaged MAP strain is used in combination with a killed MAP and/or an attenuated, live MAP that are parenterally administered.

26. (new): A method of orally immunizing a host animal against a gastrointestinal, mucosally invasive Mycobacterium avium subspecies paratuberculosis (MAP), the steps comprising:

a. providing an enteric, mucosally adherent MAP organism;

b. killing the MAP organism by a non-protein denaturing process;

b. orally administering the killed MAP organism to a host animal in a controlled dose and manner to elicit an immune response.

27. (new): The method of claim 26, wherein the killed MAP has a modified binding affinity to the gastrointestinal mucosa of the host animal.

28. (new): The method of claim 26, wherein the killed MAP is used in combination with a pharmaceutically acceptable carrier.

29. (new): The method of claim 26, wherein the oral administration of the killed MAP is used in combination with a killed MAP and/or an attenuated, live MAP that are parenterally administered.

30. (new): The method of claim 4, wherein the recombinant MAP organism stimulates a Th1-type response and/or elicits IgA secretion and cell-mediated immunity.

31. (new): The method of claim 15, wherein the serially passaged MAP organism stimulates a Th1-type response and/or elicits IgA secretion and cell-mediated immunity.

32. (new): The method of claim 26, wherein the killed MAP stimulates a Th1-type response and/or elicits IgA secretion and cell-mediated immunity.

33. (new): The method of claim 1, wherein the controlled dose is that which elicits a interferon-γ response comparable to that observed in experimental animals when given between about 10^6 to about 10^8 colony forming units of a wild virulent strain of MAP.

34. (new): The method of claim 16, wherein the MAP organism has a lower than average adherence to the intestinal mucosa of the host animal.

35. (new): The method of claim 19, wherein the recombinant MAP organism has a lower than average adherence to the intestinal mucosa of the host animal.

36. (new): The method of claim 17, wherein the serially passaged MAP organism has a lower than average adherence to the intestinal mucosa of the host animal.

37. (new): The method of claim 27, wherein the killed MAP organism has a higher than average adherence to the intestinal mucosa of the host animal.

38. (new): The method of claim 26, wherein the controlled dose is that which elicits a interferon-γ response comparable to that observed in experimental animals when given between about 10^6 to about 10^8 colony forming units of a wild virulent strain of MAP.